

AMENDMENTS TO CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A printing apparatus connected to an external interface device comprising:

a rewritable, nonvolatile, primary data memory unit for storing protected data including setting data and history data;

a receiver for receiving command data from a host device through said an external interface device;

a printing unit for printing print document data based on said command data received by the receiver;

a data update unit for updating selected protected data; and

a data protection unit for making a back-up, nonvolatile, copy of protected data updated by said data update unit, said data protection unit including a backup unit for copying the protected data content of said primary data memory unit to a rewritable, nonvolatile reserve data memory unit disposed in said external interface device.

2. (Currently Amended) A printing apparatus as described in claim 1, wherein said data protection unit copies the protected data content of said primary data memory unit to said rewritable, nonvolatile reserve data memory unit in response to at least one predefined data-backup triggering event, and the copying of said protected data content from the printer's primary data memory unit to the external interface device's nonvolatile reserve data memory unit is fully under control of said printing apparatus.

3. (Original) A printing apparatus as described in claim 2, wherein said data protection unit further includes a data restore unit for restoring backed-up data content from said reserve data memory unit to said primary data memory unit in response to at least one predefined data-restore triggering event, said backed-up data content being protected data previously copied into said reserve data memory unit from said primary data memory unit by said backup unit; and

an event controller for detecting the occurrence of said data-backup triggering event and said data-restore triggering event.

4. (Cancelled)

5. (Currently Amended) A printing apparatus connected to a host device through an external interface device, said printing apparatus comprising:

a nonvolatile primary data memory unit for storing printing apparatus settings data;

a receiver for receiving command data sent from said host device and relayed by said external interface device;

a printing unit for printing text or image data when the received command data is a print command specifying text or image data;

a data update unit for updating said printing apparatus settings data when the received command data requires the updating of settings data in said primary data memory unit; and

a backup unit for fully controlling the copying of settings data content from said primary data memory unit to a reserve data memory unit in said external interface device.

6. (Previously presented) A printing apparatus as described in claim 5, wherein said backup unit is triggered to copy and store the settings data content from said primary data memory unit to said reserve data memory unit by the settings data being updated by the data update unit.

7. (Original) A printing apparatus as described in claim 5, wherein the backup unit copies and stores the settings data content from said primary data memory unit to said reserve data memory unit when the power to said printing apparatus turns on.

8. (Previously presented) A printing apparatus as described in claim 5, further comprising a power off command input for receiving a power-off command indicating an interruption of power supply to said printing apparatus,

wherein said backup unit is triggered to copy and store the settings data content from said primary data memory unit to said reserve data memory unit by said power-off command being received.

9. (Currently Amended) A printing apparatus as described in claim 5, further comprising a data restore unit for copying the data content of said reserve data memory unit to said primary data memory unit fully under control of said printing apparatus.

10. (Original) A printing apparatus as described in claim 9, wherein said data restore unit copies the data content of said reserve data memory unit to said primary data memory unit in response to said printing apparatus being turned on if said primary data memory unit does not hold current protected data and said current protected data is stored in said reserve data memory unit of said interface device.

11. (Previously presented) An interface device external from, and connected to, a printing apparatus having a primary data memory unit for storing settings data in a nonvolatile manner, said interface device being further connected to a host device, said interface device comprising:

a reserve data memory unit for storing in a nonvolatile manner, settings data from said primary data memory unit of said printing apparatus;

a connection unit for connecting said reserve data memory unit to said printing apparatus to copy settings data from said printing apparatus to said reserve data memory unit;

a relay receiver for receiving command data sent from said host device; and

a relay transmitter for transmitting the received command data to said printing apparatus.

12. (Currently Amended) An interface device as described in claim 11, wherein said connection unit further connects said reserve data memory unit to said printing apparatus for copying settings data from said reserve data memory unit to said printing apparatus fully under control of said printing apparatus.

13. (Currently Amended) A printing apparatus connected to an external interface device control method, comprising:

a receive step for receiving command data from a host device through an external interface device;

a printing step for printing print document data based on said command data received by the receive step;

a data update step for updating protected data including settings data and history data stored in a rewritable nonvolatile primary data memory unit within said printing apparatus; and

a data protection step for making a back-up copy of protected data updated by said data update step, wherein said data protection step further includes a backup step for making said back-up copy of said protected data from said primary data memory unit to a rewritable nonvolatile reserve data memory unit located within said external interface device.

14. (Currently Amended) A printing apparatus control method as described in claim 13, wherein said backup step for making said back-up copy of said protected data from said primary data memory unit to said rewritable nonvolatile reserve data memory unit is executed ~~in response to at least one predefined data backup triggering event~~ fully under control of said printing apparatus.

15. (Original) A printing apparatus control method as described in claim 14, wherein the data protection step further comprises a data restore step for restoring protected data backed up in said reserve data memory unit by said backup step to said primary data memory unit in response to at least one predefined data-restore triggering event; and

a timing control step for determining the occurrence of said data-backup and data-restore triggering events.

16. (Cancelled)

17. (Currently Amended) A computer-readable data storage medium storing a computer program that implements a control method for a printing apparatus connected to an external interface device, said method comprising;

a receive step for receiving command data from a host device through ~~an~~ said external interface device ~~external~~ to said printing apparatus;

a printing step for printing print document data based on said command data received by the receive step;

a data update step for updating protected data including settings data and history data stored in a rewritable nonvolatile primary data memory unit of said printing apparatus; and

a data protection step for making a back-up copy of protected data updated by said data update step, wherein said data protection step further includes a backup step for making said back-up copy of said protected data from said primary data memory unit to a rewritable nonvolatile reserve data memory unit located within said interface device.

18. (Currently Amended) A computer-readable data storage medium as described in claim 17, wherein the steps for making said back-up copy of protected data from said primary data memory unit to the interface device's reserve data memory unit are fully executed under control of said printing apparatus in response to at least one predefined data backup triggering event.

19. (Original) A computer-readable data storage medium as described in claim 18, wherein the data protection step further comprises a data restore step for restoring protected data backed up in said reserve data memory unit by said backup step to said primary data memory unit in response to at least one predefined data-restore triggering event; and

a timing control step for determining the occurrence of said data-backup and data-restore triggering events.

20. (Cancelled)

21. (Original) A computer-readable data storage medium as described in claim 17, wherein said data storage medium is one of a Compact Disc, a floppy disk, a hard disc, a magneto-optical disc, a digital video disc or a digital versatile disc, a magnetic tape, semiconductor memory, and a memory card.

22. (Previously presented) A printing apparatus control method for controlling a printing apparatus having a primary data memory unit for storing settings data in a nonvolatile manner, and connected to a host device through an external interface device, said printing apparatus control method comprising:

a receive step for receiving command data sent from said host device and relayed by said interface device;

a printing step for printing text or image data when the received command data is a print command specifying text or image data;

a data update step for updating said printing apparatus settings data when the received command data is a command requiring the updating of settings data in said primary data memory unit; and

a backup step for copying and storing, in a nonvolatile manner, settings data from said primary data memory unit to a reserve data memory unit of said interface device.

23. (Original) A printing apparatus control method as described in claim 22, wherein said backup step copies and stores settings data from said primary data memory unit to said reserve data memory unit when the settings data content of said primary data memory unit is updated by said data update step.

24. (Original) A printing apparatus control method as described in claim 22, wherein said backup step copies and stores settings data from said primary data memory unit to said reserve data memory unit when power to said printing apparatus turns on.

25. (Original) A printing apparatus control method as described in claim 22, further comprising a power off command input step for receiving a power off command indicating the interruption of a power supply to said printing apparatus,

wherein said backup step copies and stores settings data from said primary data memory unit to said reserve data memory unit in response to receiving said power off command.

26. (Previously presented) A printing apparatus control method as described in claim 22, further comprising a data restore step for copying and storing setting data from said reserve data memory unit to said primary data memory unit.

27. (Original) A printing apparatus control method as described in claim 26, wherein the data restore step is initiated when power to said printing apparatus turns on if current settings data is not stored within said primary data memory unit but is stored within said reserve data memory unit.

28. (Previously presented) An interface device control method for controlling an interface device connected to, and external from, a printing apparatus having a nonvolatile primary data memory unit for storing settings data, and connected to a host device, said interface device control method comprising:

 a backup step for copying settings data from said data memory unit of the printing apparatus to a nonvolatile reserve data memory unit within said interface device;

 a relay receiving step for receiving command data sent from the host device; and

 a relay transmission step for sending the command data received in said relay receiving step to said printing apparatus.

29. (Original) An interface device control method as described in claim 28, further comprising a data restore step for copying and storing settings data content from said reserve data memory unit to said primary data memory unit of the printing apparatus.

30. (Previously presented) A printing apparatus connected to an interface device comprising:

 a receiver for receiving first data from a host device through the interface device external to said printing apparatus;

 a printing unit for printing said first data received by the receiver;

 a rewritable first memory unit for storing second data including operating parameter data and history data;

 a data update unit for updating the said second data;

 an event control unit for detecting, as a backup event, that one or more predetermined first conditions are fulfilled; and

 a data protection unit having a backup unit for saving the updated second data to a rewritable second memory unit in response to a backup event being detected, said second memory unit being disposed in the interface device.

31. (Original) The apparatus of claim 30, wherein

 said event control unit is also for detecting, as a restore event, that one or more predetermined second conditions are fulfilled; and

the data protection unit further includes a data restore unit for restoring data from said second memory unit to said first memory unit in response to a restore event being detected.

32. (Original) The apparatus of claim 30, wherein one or both of said first and second memory units are adapted to store data in a nonvolatile manner.

33. (Original) The apparatus of claim 30, wherein said first conditions include updating said operating parameter data by the data update unit.

34. (Original) The apparatus of claim 30, wherein said first conditions include the power to the printing apparatus power being turned on.

35. (Original) The apparatus of claim 30, further includes a power-off command input means for accepting a power-off command interrupting the power supply to the printing apparatus,

wherein said first conditions include reception of such power-off command.

36. (Original) The apparatus of claim 31, wherein said second conditions include the power to the printing apparatus power being turned on and the operating parameter data being not stored in said first memory unit but being stored in said second memory unit.

37. (Original) A computer-readable data storage medium carrying a program causing a computer connected to a host device through an interface device having said second memory unit to function as a printing apparatus according to claim 30.

38. (Original) A data storage medium as described in claim 37, wherein the data storage medium is a Compact Disc, a floppy disk, a hard disc, a magneto-optical disc, a digital video disc, a magnetic tape, semiconductor memory, a digital versatile disc, or a memory card.

39. (Previously presented) An interface device adapted to be used with a printing apparatus as defined in claim 30 for connecting the printing apparatus to a host device, comprising:

a relay receiver for receiving first data from the host device;

a relay transmitter for sending the received first data to the printing apparatus;

a memory unit for storing data in a nonvolatile manner as said second memory unit; and

a connection unit for connecting said second memory unit to the printing apparatus to allow saving second data from the printing apparatus to said second memory unit.

40. (Original) The interface device of claim 39, wherein the connection unit is adapted to allow copying data from said second memory unit to the printing apparatus.

41. (Previously presented) An interface device external from, and connectable to, a printer and to a host device, wherein the printer has a nonvolatile primary data memory unit for storing printer settings data, said interface device comprising:

a relay receiver for receiving command data from said host device;

a relay transmitter for transmitting the received command data to said printer;

a nonvolatile reserve data memory unit;

a connection unit for coupling said reserve data memory unit to said printer, wherein under at least partial control of said printer, printer settings data are transferred from the printer's primary data memory unit to the interface device's nonvolatile reserve data memory unit.

42. (Previously presented) The interface device of claim 41, wherein the transfer of printer settings data from the printer's primary data memory unit to the interface device's reserve data memory unit is fully under control of said printer.

43. (Previously presented) The interface device of claim 41, wherein the connection unit is further effective for permitting the printer to control the recovery of settings data from the reserve data memory unit.

44. (Previously presented) The interface device of claim 41, further having a power connection connectable to the printer, wherein power to the interface device is provided by the printer.

45. (Currently Amended) The interface device of claim 41, wherein said interface device lacks a ~~central~~data processing unit.

46. (Previously presented) The interface device of claim 41, wherein the transfer of printer settings data from the printer's primary settings data memory to the interface device's reserve data memory unit is an automated process not requiring user intervention.

47. (Previously presented) A printer comprising:

a rewritable, nonvolatile, primary data memory unit for storing updatable setting data;

a receiver for receiving command data from a host device through an external interface device;

a printing module for printing print document data based on said command data received by the receiver;

a data update unit for updating selected settings data; and

backup unit for controlling said external interface device, and effective for copying, at least partially under printer control, the settings data content of said primary data memory unit to a rewritable, nonvolatile reserve data memory unit within said interface device.

48. (Previously presented) The printer of claim 47, wherein the copying of settings data content from the primary data memory unit to the rewritable, nonvolatile reserve data memory unit is fully under control of said printer.

49. (Previously presented) The printer of claim 47, being further effective for controlling the recovery of settings data from the rewritable, nonvolatile reserve data memory unit.

50. (Previously presented) The printer of claim 47, further having a power connection connectable to said external interface device, said printer being effective for powering said interface device through said power transfer means.

51. (Previously presented) The printer of claim 47, wherein the copying of settings data content from the primary data memory unit to the rewritable, nonvolatile reserve data memory unit is an automated process not requiring user intervention.

52. (Currently Amended) The printer of claim 47, wherein setting data is generated by said printer, and said printer and host device are physically connected to said external interface device.